equation derived from a group of normal children. This equation should be used to define the limits of normal ascending aorta size. Children with BAV are at risk of developing a dilated ascending aorta. This dilatation is progressive. In serial echocardiographic follow up of a group of children with BAV in the Canadian Maritimes, ascending aortic z scores increased at an average rate of 0.39/year, suggesting that a follow up interval of three years would be appropriate for most paediatric patients with this condition. A higher initial left ventricular outflow tract gradient predicts more rapid aortic dilatation. Although the number of patients taking them was small, the non-use of β blockers also predicted more rapid aortic dilatation.

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REFERENCES

- Roberts WC. The congenitally bicuspid aortic valve: a study of 85 autopsy cases. Am J Cardiol 1970;26:72–83.
- 2 Steinberger J, Moller JH, Berry JM, et al. Echocardiographic diagnosis of heart disease in apparently healthy adolescents. Pediatrics 2000;105:815–8.

- 3 Basso C, Boschello M, Perrone C, et al. An echocardiographic survey of primary school children for bicuspid aortic valve. Am J Cardiol 2004;93:661–3.
- 4 Larson EW, Edwards WD. Risk factors for aortic dissection: a necropsy study of 161 cases. Am J Cardiol 1984;53:849–55.
- 5 Roberts CS, Roberts WC. Dissection of the aarta associated with congenital malformation of the aartic valve. J Am Coll Cardiol 1991;17:712-6.
- 6 Von Kodolitsch Y, Simic O, Schwartz A, et al. Predictors of proximal aartic dissection at the time of aartic valve replacement. Circulation 1999;100(suppl 19):II287–94.
- 7 Ward C. Clinical significance of the bicuspid aortic valve. Heart 2000:83:81-5.
- 8 Von Kodolitsch Y, Aydin MA, Koschyk DH, et al. Predictors of aneurysmal formation after surgical correction of aortic coarctation. J Am Coll Cardiol 2002;39:617–24.
- 9 Hagl C, Strauch JT, Spielvogel D, et al. Is the Bentall procedure for ascending aorta or aortic valve replacement the best approach for long-term event-free survival? Ann Thorac Surg 2003;76:698–703.
- 10 Januzzi JL, Isselbacher EM, Fattori R, et al. Characterizing the young patient with aortic dissection: results from the International Registry of Aortic Dissection (IRAD). J Am Coll Cardiol 2004;43:665–9.
- 11 Ferencik M, Pape L. Changes in size of ascending aorta and aortic valve function with time in patients with congenitally bicuspid aortic valves. Am J Cardiol 2003;92:43–6.
- 12 Gurvitz M, Chang RK, Drant S, et al. Frequency of aortic root dilation in children with a bicuspid aortic valve. Am J Cardiol 2004;94:1337–40.
- 13 Kuralay E, Demirkilic U, Ozal E, et al. Surgical approach to ascending aorta in bicuspid aortic valve. J Card Surg 2003;18:173–80.
- 14 Nkomo VT, Enriquez-Sarano M, Ammash NM, et al. Bicuspid aortic valve associated with aortic dilatation: a community-based study. Arterioscler Thromb Vasc Biol 2003;23:351–6.
- 15 Pauperio HM, Azevedo AC, Ferreira CS. The aortic valve with two leaflets: a study in 2,000 autopsies. Cardiol Young 1999;9:488–98.
- 16 Daubeney PEF, Blackstone EH, Weintraub RG, et al. Relationship of the dimension of cardiac structures to body size: an echocardiographic study in normal infants and children. Cardiol Young 1999;9:402–10.
- 17 Nataatmadja M, West M, West J, et al. Abnormal extracellular matrix protein transport associated with increased apoptosis of vascular smooth muscle cells in Marfan syndrome and bicuspid aortic valve thoracic aortic aneurysm. Circulation 2003;108(suppl 1):11329–34.
- 18 Nistri S, Sorbo MD, Marin M, et al. Aortic root dilatation in young men with normally functioning bicuspid aortic valves. Heart 1999;82:19–22.
- 19 Hahn RT, Roman MJ, Mogtader AH, et al. Association of aortic dilation with regurgitant, stenotic and functionally normal bicuspid aortic valves. J Am Coll Cardiol 1992;19:283–8.
- 20 Dore A, Brochu MC, Baril JF, et al. Progressive dilation of the diameter of the aortic root in adults with a bicuspid aortic valve. Cardiol Young 2003;13:526–31.
- 21 Rossi-Foulkes R, Roman MJ, Rosen SE, et al. Phenotypic features and impact of beta blocker or calcium antagonist therapy on aortic lumen size in the Marfan syndrome. Am J Cardiol 1999;83:1364–8.

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